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parsimony

principle of the theory of science stating that when choosing among competing theories, hypotheses or explanations, it is generally preferable to select the simplest one.

Sparsamkeit
wissenschaftstheoretisches Prinzip, das besagt, dass bei einer Wahl zwischen rivalisierenden Theorien, Hypothesen oder Erklärungen vorzugsweise die einfachste Möglichkeit gewählt wird.

Simplicity principles have been proposed in various forms by theologians, philosophers and scientists including Aristotle, Aquinas, Kant, Galileo, Newton, and Einstein (cf. *Spade/ Panaccio* 2011). The principle of parsimony is typically stated as *Entia nun sunt multiplicanda praeter necessitatem* ("Entities are not to be multiplied without necessity"). This version of the principle is referred to as "Ockham's Razor" after William of Ockham, a 14th-century English logician, theologian and Franciscan friar, although it has never been found in any of his extant works (cf. *Newall* 2005).

The principle still plays a role in the theory of science and in scientific methodology. It is reflected, for example, by models of human knowledge representation based on inheritance. Normal (or default) inheritance incorporates the idea that whatever we know to be true of a particular category is not necessarily also true of every single one of its subordinates. With respect to the category 'bird', this means that a property like 'flies' is stored with the category 'bird' but not with the many instances of bird species and individual birds which we know to be able to fly. Rather, the property 'flies' is inherited by the subordinate categories from the superordinate category 'bird'. If inheritance conflicts with information in the more specific case, as in the case of penguins, ostriches, a bird with a broken wing etc., inheritance is blocked (cf. *Croft/ Cruse* 2004: 275-276).

In contrast to normal inheritance models, full entry models allow information to be represented at all levels in the taxonomic hierarchy and thereby violate the principle of parsimony (cf. *Croft/ Cruse* 2004: 276). *Goldberg* (1995: 98-99) mentions instances of the resultative construction like *break the cask open* and *cut the speech short* as phenomena which virtually require a full-entry representation. On the one hand, resultatives like these allow for the same type of word order variation as verb-particle constructions in spite of the fact that word order variation is atypical of resultatives (cf. **He talked hoarse himself*), cf. (1) and (2):

(1a) Break open the cask.

(1b) Break the cask open.

(2a) He cleaned up the mess.

(2b) He cleaned the mess up.

On the other hand, resultatives, including those like (1), allow for predication of the result phrase while verb-particle constructions do not:

(3a) Break open the cask. / Break the cask open.

(3b) The cask is open.

(4a) He cleaned up the mess. / He cleaned the mess up.

(4b) *The mess is up.

Goldberg shows that multiple inheritance cannot explain the properties of resultatives like *break open the cask*, because the parent constructions (the resultative construction and the verb-particle construction) give conflicting specifications about word order and predication of the result phrase. She suggests that, in cases like this, the information about the specific construction type is provided in the specific construction, even if it is redundant given the information contained in (one of) the parent constructions.

Parsimony in representation as assumed by inheritance models optimizes storage but also increases processing demands. By contrast, redundant storage as assumed by full-entry models optimizes processing at the expense of storage (cf. *Barsalou* 1992: 180, *Croft*/ *Cruse* 2004: 278).

The principle of parsimony also plays a role in syntax (e.g., minimalism), semantics (e.g., the Principle of No Synonymy), comparative linguistics (e.g., genetic tree theory) and in other areas of linguistics.

References

- category (Cognitive Grammar)
- resultative construction (Cognitive Grammar)

Literature

- BARSALOU, L.W. [1992] Cognitive Psychology. An Overview for Cognitive Scientists. Hillsdale, NJ

- CROFT, W./ CRUSE, D.A. [2004] Cognitive Linguistics. Cambridge [etc.]

- GOLDBERG, A.E. [1995] Constructions. A Construction Grammar Approach to Argument Structure. Chicago, IL

- NEWALL, P. [2005] Ockham's Razor. [Unter: http://www.galilean-library.org/site/index.php/page/index.html/_/essays/philosophyofscience/ockhams-razor-r55; letzter Zugriff: 20.07.2012]

- SPADE, P.V./ PANACCIO, C. [2011] William of Ockham. In: ZALTA, E.N. [ed.] The Stanford Encyclopedia of Philosophy. [Unter: URL: http://plato.stanford.edu/entries/ockham/; letzter Zugriff: 20.07.2012]